

CLAIMS

1. Electro-optical display cell (1; 18), particularly a liquid crystal cell, or electrochemical photovoltaic cell comprising:

- at least one transparent front substrate (2; 20) whose top surface forms the front face (14) of the cell (1; 18);

- at least one back substrate (8; 22) that may also be transparent or not, whose lower surface (12; 31) forms the back face of said cell (1; 18);

- a sealing frame (36) joining the front (20) and back (22) substrates and defining a volume (38) for retaining an electro-optically or photo-electrically active medium in a sealed manner;

- said front (20) and back (22) substrates including on their faces opposite each other at least one electrode (24, 26) each, these electrodes (24, 26) being intended to be connected by conductive paths (16; 30, 34) to an electrical power or control circuit (10; 56) and defining lateral electric contact zones (28, 32),

said cell being characterised in that the conductive paths (30, 34) are each formed of a first part (30a, 34a) in contact with the electrodes at the level of the lateral electric contact zones (28, 32), and a second part (30b, 34b) extending over the back surface (31) of the cell (18), contact means (42) arranged continuously or discontinuously over the edge (27) and/or the back (12; 31) of said cell (1; 18) forming the electrical junction between the first (30a, 34a) and second parts (30b, 34b) of the conductive paths (30, 34).

2. Cell according to claim 1, characterised in that the contact means (42) take the form of discrete bumps.

3. Cell according to claim 2, characterised in that the first parts (30a, 34a) of the conductive paths (30, 34) come into lateral contact with the conductive
5 bumps (42), whereas the second parts (30b, 34b) of the conductive paths (30, 34) can extend as far as the top of said bumps (42) and cover them in whole or in part.

4. Cell according to claim 2, characterised in that the second parts (30b, 34b) of the conductive paths extend at least partially underneath the conductive bumps (42).

10 5. Cell according to claim 1, characterised in that the contact means (42) take the form of a tape of anisotropic conductive material (64).

6. Cell according to any of claims 1 to 5, characterised in that it includes a stack of (n) individual cells, each of the individual cells being defined by two substrates belonging thereto.

7. Cell according to any of claims 1 to 5, characterised in that it includes (n+1) superposed substrates, these (n+1) substrates being joined in pairs by a sealing frame.

5 8. Multi-layered liquid crystal display cell (1) including four superposed substrates (2, 4, 6, 8) joined in pairs by sealing frames which each define a sealed cavity for retaining liquid crystals, a first sealing frame joining the substrates (2, 4), while a second sealing frame joins the substrates (4, 6) and a third sealing frame joins the substrates (6, 8), said substrates (2, 4, 6, 8) including on their faces opposite each other at least one electrode each, said electrodes being intended to be connected by
10 conductive paths (30, 34) to an electric control circuit (10) and defining lateral electric contact zones,

said cell being characterised in that the conductive paths (30, 34) are each made up of a first part (30a, 34a) in contact with the electrodes at the level of the lateral electric contact zones (28, 32), and a second part (30b, 34b) extending over
15 the back surface (31) of the cell (18), contact means (42) arranged continuously or discontinuously on the edge (27) and/or on the back (12; 31) of said cell (1; 18) forming the electric junction between the first (30a, 34a) and the second parts (30b, 34b) of the conductive paths (30, 34).

9. Cell according to any of claims 1 to 8, characterised in that the power or
20 control circuit (10; 56) is mounted on the back (12; 31) of the cell (1; 18).

10. Cell according to claim 9, characterised in that the circuit (10; 56) is mounted directly on the back (12; 31) of the cell (1; 18).

11. Cell according to claim 9, characterised in that the circuit (10; 56) is mounted on the back (12; 31) of the cell (1; 18) via a printed circuit board (60) or a
25 flexible conductive film (61).

12. Cell according to any of claims 1 to 11, characterised in that a transparent or coloured absorbent layer (62) for relaxing thermo-mechanical stresses and able to resist a chemical etch bath is deposited on the back of the cell (18).

13. Method of metallising a group of liquid crystal cells, characterised in that
30 it includes the steps of:

- metallising the back (12; 31) of the cells (1; 18) while the latter are still in batches;
- separating the cells (1; 18) in individual cells;
- arranging the group of cells (1; 18) on a support or fitting (48) so that the cells
35 (1; 18) are arranged parallel to each other obliquely and staggered in relation to each other, and

- depositing via evaporation an electrically conductive material on the edge (52) of the cells to be metallised.